National Nanomanufacturing Network Newsletter

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The NNN Newsletter

Public Private Partnerships Play a Critical Role in Nanotech Commercialization

Commercialization of advanced products is very much an exercise of bringing all the pieces of the puzzle together. The challenges of pushing nano-enabled products from the research laboratory through the commercialization path face key barriers beyond initial demonstration and qualification of product feasibility. One critical need is for the necessary infrastructure to conduct pilot studies in nanomanufacturing. The National Nanotechnology Initiative (NNI) has taken major strides towards this piece of the puzzle, with virtually every government agency opening up research centers, laboratories, and user facilities to chart the initial steps to overcome these barriers. Future nanomanufacturing technologies will benefit from the virtual goldmine of developments, capabilities, knowledge, and expertise that has been established at the U.S. Government Federal Laboratories.

The military, for example, has established numerous research, development, and engineering centers throughout the U.S. that support specific organizational and operational missions. The military seeks to accelerate critical nanotechnologies for warfighter performance, for which a key barrier includes field trial assessments due to the lack of established standards for characterizing and producing nano-enabled products and nanostructured materials. Establishing an infrastructure with a focus on the dual-use nature of these products, in which both commercial market viability must be demonstrated concurrently with military markets and applications, provides the business model for accelerating these critical technologies out of the laboratory into field trials and subsequent manufacturing ramp-up for commercial products. Department of Defense (DOD) centers play crucial roles for the technology development as well as product fielding, operational testing, and evaluation.

Such public private-partnerships play a critical role in a business environment that is becoming increasingly difficult to secure sufficient capital for commercial enterprises. Below, we look at other examples of initiatives where the public and the private sectors are merging to advance manufacturing: the Nanomanufacturing Program for the Department of Energy (DOE), which partners industry and DOE researchers to transition energy efficiency related technologies to commercialization, and the industry-led Atomically Precise Manufacturing Consortium, which works with government partners to develop new manufacturing techniques for tip-based nanofabrication. In addition, the Army has recently sponsored the Nanomanufacturing and Dual-Use Commercialization Conference as a means of facilitating key collaborations towards advancing products specific to their needs while cross-promoting extended commercial applications. Further approaches to establish the

Upcoming Events

November 17 - 20, 2008
14th International Conference on Thin Films and Reactive Sputter Deposition

November 27, 2008
Nanochallenge and Polymerchallenge Investor Session

December 1 - 5, 2008
MRS Fall Meeting 2008

December 3 - 5, 2008
Nanotechnology International Forum (RusNanoTech) 2008

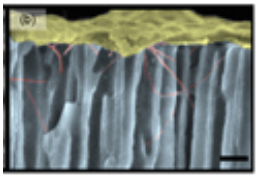
Affiliated Centers

infrastructure to conduct pilot studies in nanomanufacturing may be facilitated through the Testbed Programs which have been developed at the National Science Foundation's Nanoscale Science and Engineering Centers, and will be reported in future issues.

Regards,
Jeff Morse, Managing Director,
National Nanomanufacturing Network

Learn more about the NNN...

Directed Assembly of Carbon Nanotubes: A review



Research out of Northeastern University demonstrates a method of directed assembly of SWNTs that is clearly scalable and compliant with semiconductor integrated circuits. The ability to precisely control the properties of SWNT through post-synthesis procedures, and subsequently position individual SWNT in three dimensions with nanometer precision represents an enabling method for seamless manufacturing and integration of advanced nanoelectronics. More...

Advanced Nanomanufacturing for Energy Efficiency

Future nanomanufacturing approaches and applications will consider their impact on energy efficiency in a research directive established by the U.S. Department of Energy (DOE). With a focus on products and applications related to energy generation, storage, and consumption, the goal of the Nanomanufacturing Program is to investigate advanced techniques that will substantially reduce energy and carbon footprints in a range of industrial processes. More...

Atomically Precise Manufacturing Consortium

APMC
Atomically Precise Manufacturing Consortium

Building off of their APM research program, the Zyvex-led APMC was created in late 2007, demonstrating the larger community interest in molecularly-precise manufacturing. With a roster of government, industry, and academic partners, the APMC plans to develop atomically precise nanotechnology-based products with high-rate, high-volume manufacturing techniques at reasonable cost and to maximize the commercial opportunities for this technology. More...

Read more on InterNano

CHM
Center for Hierarchical Manufacturing
University of Massachusetts Amherst

Center for High-rate Nanomanufacturing

Center for Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems

SINAM
CENTER FOR SCALABLE AND INTEGRATED NANOMANUFACTURING

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